152 S. Broad St.
Lansdale, PA 19446
(215)361-8040

May 24, 2021

PowerHome Solar
919 N. Main St
Mooresville, NC 28115

RE: Willis Residence
92 South Harnett Lane, Bunnlevel, NC 28323
Client Project #: 92WILL
PFE Project #: 212599

On behalf of PowerHome Solar, Penn Fusion Engineering LLC (PFE) performed a site visit and structural analysis of the roof design at the above referenced location. The purpose of our analysis was to determine if the existing design of the roof system is structurally sufficient to support the new photovoltaic modules in addition to the code required design loads. Information used for this analysis was determined by a site survey performed by a representative of PFE and is isolated only to the areas where the modules are intended to be placed. If any discrepancies are found by the contractor during installation, please contact PFE.

System Specifications:
Panel Specs: (26) Hanwha - Q Cells
Racking System: Quick Mount PV - QRail Light

The modules are to be located on the following roof planes:

Mounting Plane	Rafter Size	Rafter Spacing	Horizontal Span	Collar Ties	Collar Tie Spacing	Sheathing	Shingle Type	Number of Shingle Layers	Ceiling Profile
1	Truss	24"	28ft. 1in.		"	CDX 1/2"	Asphalt Shingles	1	Flat
2	Truss	24"	28ft. 1in.		"	CDX 1/2"	Asphalt Shingles	1	Flat

The roof design has been analyzed in accordance with the 2018 North Carolina Residential/Building Code with design loads as follows:

Ground Snow (Pg): 10 psf
Wind Speed (V): 120 mph

Mounting Plane 1
It has been determined by this office that the roof, as specified above, is adequate to support the new PV modules in addition to the code required design loading.

Attach the module rail brackets to the roof with 5/16" lag bolts at 48 on center maximum with staggered penetration such that load is distributed evenly among roof members. Provide a minimum of 2" of penetration into the wood members.

Mounting Plane 2
It has been determined by this office that the roof, as specified above, is adequate to support the new PV modules in addition to the code required design loading.

Attach the module rail brackets to the roof with 5/16" lag bolts at 48 on center maximum with staggered penetration such that load is distributed evenly among roof members. Provide a minimum of 2" of penetration into the wood members.

If you have any questions regarding this analysis, please feel free to contact us.

Best Regards,
Penn Fusion Engineering LLC
Firm License No. P-1848

Andrew D. Leone, P.E.
Principal

Andrew D. Leone
Digitally signed by Andrew D. Leone
Date: 2021.05.24 11:28:24 -04'00'